Reflections on points of interest in 2 cases of abdominal cryptorchidism


ABSTRACT

Objective: To report 2 cases of abdominal cryptorchidism emphasizing the points of interest of this pathology.

Materials and Methods:

CASE 1: The patient is a 3-year-old male presenting with absence of testicle in the right scrotal bag. Abdominopelvic ultrasonography (USG) showed the testicle to be located near the iliac vessels. Tumor markers reported an alpha-fetoprotein elevation of 18 ng/mL. Laparoscopic orchiectomy of the ectopic testicle was performed and the pathology study reported confined yolk-sac germ cell intratesticular neoplasia. At 9-month follow-up the patient shows normal growth and development. Tumor markers are negative and tomography studies are normal.

CASE 2: The patient is a 14-year-old male presenting with absence of testicle in the right scrotal bag. USG and tomography showed the testicle to be located in the pelvic cavity. Tumor markers were negative. Laparoscopic orchiectomy was uneventful and the pathology report described an atrophic testicle.

RESUMEN

Objetivo: Reportar 2 casos de criptorquidia abdominal haciendo énfasis en los puntos de interés sobre dicha patología.

Material y métodos: CASO 1: Masculino de 3 años de edad, con ausencia de testículo derecho en bolsa escrotal se realizó USG abdominopélvico evidenciando su localización cerca de los vasos ilíacos. Los marcadores tumorales reportaron elevación de AFP: 18 ng/mL. Se realiza orquiectomía laparoscópica del testículo ectópico, el reporte de patología de neoplasia intratesticular saco de Yolk órgano-confinada. A los 9 meses de seguimiento el paciente con crecimiento y desarrollo normal, con marcadores tumorales negativos y estudios de tomografía normales.

CASO 2: Masculino de 14 años de edad con diagnóstico de ausencia de testículo en bolsa escrotal derecha. Se realizó USG y tomografía, evidenciando el testículo en hueco pélvico, los marcadores tumorales fueron negativos. Se sometió a orquiectomía laparoscópica sin eventualidades. El reporte de patología fue de testículo atrófico.

Discusión: La ectopia testicular aumenta el riesgo de desarrollar una neoplasia, por lo que debemos estudiar a fondo dicha posibilidad antes de decidir un descenso
Discussion:
Testicular ectopy increases the risk of developing neoplasia and this possibility must be fully studied before deciding to descend a testicle. Therapeutic decisions in these cases are complex. Laparoscopic orchiectomy of abdominal testicles is a simple, safe, efficient and minimally invasive procedure for treating these patients.

Key Words: Abdominal cryptorchidism, Management evaluation, Laparoscopy

INTRODUCTION
Cryptorchidism is the most frequent congenital pathology and presents in full-term newborn males with an incidence of 3.4%. The percentage drops to 0.8% at one year of age due to natural and spontaneous testicular descent. In the case of premature 7-month babies, incidence is as high as 40%. Intra-abdominal testicle location represents only 10% of all cryptorchidism cases (1,2).

The difference between a cryptorchidic testicle and an ectopic one is clear. In cryptorchidism testicle descent is detained before reaching the scrotum at some site along its normal path (Image 1). An ectopic testicle goes off its normal path of descent and can end up at any site outside of it. Genital examination of the newborn is very important. If the testicles are absent from the scrotal bag the physician is obliged to search for them early on, establishing the possible differential diagnoses of anorchism, testicular atrophy, cryptorchidism and testicular ectopy.

The objective of the present article is to report 2 cases of abdominal cryptorchidism emphasizing the points of interest of this pathology.

CASE REPORT
CASE 1: The patient is a 3-year-old male, product of a first pregnancy and normal full-term birth. Bilateral cryptorchidism was diagnosed by a pediatric surgeon when the child was 2 years old and treatment with human chorionic gonadotropin (hCG) was begun. The apparent descent of the right testicle was achieved but not the left. The patient underwent surgical examination of the inguinal region without locating the left testicle. Referred to urology consultation, abdominopelvic ultrasonography (USG) was ordered for the patient and an image appearing to be the testicle was identified near the left iliac vessels (Image 2). Right scrotal bag scan revealed the right testicle to be located within the bag and apparently without alterations. Tumor markers reported lactate dehydrogenase (LDH) and beta fraction of hCG (BF-hCG) within normal limits and an elevated alpha-fetoprotein (AFP) of 18 ng/mL.

Laparoscopic orchiectomy of the abdominal testicle was performed. Pediatric surgical instrumentation was not available so adult instrumentation was optimized. A 10 mm port was used for hemoclip application, a 5 mm port was used for the 30° foroblique cystoscopy lens, which functioned adequately, and another 5 mm port was used to introduce tweezers and scissors. The procedure was carried out without complications and postoperative progression was adequate.

The pathology report showed a confined yolk-sac intratesticular tumor with no vascular or lymphatic permeability in the spermatic cord. At 9-month follow-up the patient’s growth and development were normal and tumor marker controls and abdominopelvic tomography and chest X-rays were negative.

CASE 2: The patient is a 14-year-old male who was referred to urology consultation with the diagnosis of
De-Silva-Gutiérrez A et al. Reflections on points of interest in 2 cases of abdominal cryptorchidism

absence of testicle in the right scrotal bag. USG and 64-slice CT with three-dimensional reconstruction were ordered showing the right testicle in the pelvic cavity at the level of the iliac vessels (Image 3).

LDH, AFP, and BF-hCG tumor markers were negative and the patient’s secondary sexual characteristics were normal. The contralateral gonad showed no apparent alterations.

Laparoscopic orchiectomy was performed with no complications and postoperative progression was normal. The pathology report indicated an atrophic testicle with no signs of malignancy.

**DISCUSSION**

Cryptorchidism may present as a single entity (the disease) or it may form part of complex pathologies such as hypogonadism, trisomies, hypothyroidism, hypophysial aplasia, Klinefelter’s Syndrome, prune belly syndrome, Prader-Willi syndrome, Kallmann syndrome, complete androgen insensitivity syndrome (CAIS), cloacal exstrophy, anencephaly and 5-alpha-reductase deficiency (5-ARD). Severe hormonal deficiency is involved in all of these pathologies and cryptorchidism forms part of a complex event with multiple anomalies and so is not an isolated disease (3-5).

Testicular descent failure has been attributed to mechanical and hormonal factors, the first of which are alterations in the fixing of the gubernaculum testis, the presence of a narrow inguinal ring or an anomalous scrotal septum and insufficient length of the spermatic vessels.

In relation to hormonal deficiency factors, a transitory deficiency of luteinizing hormone (LH) secretion has been documented that affects the hypothalamus-hypophysis-gonad axis (6-8). Regardless of the cause, we believe that testicles that stop or modify their downward path before reaching the scrotal bag potentially possess some degree of gonadal dysgenesis.

Only 10% of cryptorchidism cases involve intra-abdominal testicles. Testicular descent and orchiectomy are the two therapeutic options and determining which therapy to follow is an important and critical decision in cases of both intra-abdominal and ectopic testicles. We believe a rule of thumb is to individualize each case, taking into account as reference variables the suspicion of possible neoplasm, the location of the contralateral gonad, the age of the patient and the possibility of performing testicular descent in one or two stages either by laparoscopy or with open surgery (Image 4). Prior study should always include tumor marker determination, morphological study of the gonad once...
its location has been determined by imaging studies such as multi-slice reconstruction tomography and when necessary, intraoperative testicular biopsy when there is doubt as to the benefit of carrying out testicular descent.

Another fundamental aspect is being certain that there will be strict surveillance of the patient after descent and orchidopexy because of the imminent risk of developing neoplasia.

In Case 1, the suspicion of intratesticular neoplasia because of elevated AFP was such that orchiectomy had been definitely planned in the preoperative stage despite the patient’s young age. This decision was later supported by the histopathological study confirming a germ cell line tumor. If there is no clear evidence of cancer in cases of abdominal cryptorchidism it is necessary to sequentially evaluate each point on the therapeutic decision support scale. In Case 2, testicular markers were negative and signs of atrophy in the testicle were revealed by 64-slice CT. However, the patient’s age and adequate growth and development, added to the technical difficulty of descent due to vessel shortness and multiple adhesions, were all factors leading to performing orchicectomy.

It is necessary to emphasize that the risk of malignization in cases of ectopic testicle or abdominal cryptorchidism is 30 to 50 times greater than when the gonads are in the scrotal bag. Fifty percent of these malignizations are in intra-abdominal testicles. Therefore descending or removing the gonad becomes a priority once it is located (9-12).

In the etiopathology of the development of cancer, gonadal damage has been cited as a product of temperature increase, hormonal imbalance and dysgenesis. The risk of testicular torsion, traumatisms in inguinal testicles and inherent psychological damage from the testicle not being in the scrotal bag are all latent risks and possible complications that need to be taken into account. In conclusion it should be emphasized that both orchiectomy and orchidopexy in abdominal testicles are laparoscopic procedures of choice.

BIBLIOGRAPHY